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ABSTRACT

Presented are proceedings and products from a special study institute on individualized instruction in science for the handicapped (New York, 1974) in which both teachers of the handicapped and regular classroom teachers participated. It is explained that objectives of the institute included acquainting teachers of special education with the research and development in the areas of science education, and developing competencies in writing instructional objectives for the classroom. Information provided includes the names of participants and a program outline. The major portion of the document consists of approximately 80 science activity cards developed by participants to teach topics such as textures, directionality, following a recipe, temperature, and magnets. Each activity card includes the following information: area taught by the developer of the activity (such as educable mentally retarded or learning disabled students), suggested grade level for the activity, title of activity, objectives, materials, and procedures. (LS)

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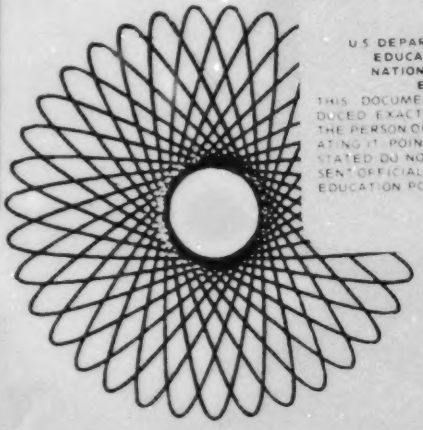
PROCEEDINGS

from

Special Study Institute



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on CLASSROOM MANAGEMENT SYSTEMS FOR IMPLEMENTATION OF INDIVIDUALIZED INSTRUCTION:

UTILIZING SCIENCE IN PROGRAMS FOR THE HANDICAPPED

sponsored by

THE NEW YORK STATE EDUCATION DEPARTMENT
Division for Handicapped Children
Unit on Instructional Materials for the Handicapped
(SEIMC)

in cooperation with

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YONKERS, NEW YORK 10701

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ACTIVITY CARDS I

THE UNIVERSITY OF THE STATE OF NEW YORK
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1984 Joseph W. McGovern, A.B.,J.D.,L.H.D.,LL.D., - Chancellor.....New York
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1987 Carl H. Pforzheimer, Jr.,A.B.,M.B.A.,D.C.S.,H.H.D.....Purchase
1975 Edward M.M.Warburg,B.S.,L.H.D.....New York
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1976 Mrs. Helen B. Power,A.B.,Litt.D.,L.H.D.,LL.D.....Rochester
1979 Francis W. McGinley,B.S.,J.D.,LL.D.....Glen Falls
1986 Kenneth B. Clark, A.B.,M.S.,Ph.D.,LL.D.,L.G.D.,.....Hastings on Hudson
1983 Harold E. Newcomb, B.A.....Owego
1981 Theodore M. Black, A.B.,Litt.D.....Sands Point
1988 Willard A. Genrich, LL.B.....Buffalo
1982 Emlyn I. Griffith, A.B.,J.D.....Rome
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FORWARD

The training of special education teachers, in most respects, is similar to the training programs for regular education teachers. Perhaps, the one significant difference lies in the training focus for special education teachers on planning for individual differences. Recognizing the varied range of differences within their classrooms, special education teachers must, of necessity, continually search for effective means of developing basic skills as well as processes of communication, peer relationships and an understanding of the physical and social world around them.

In the process of planning staff development programs and search for pedagogic techniques that teachers could use to motivate students and improve their instructional programs, the Special Services Department of the Yonkers Public Schools became aware of the curriculum research and development in the field of elementary science education. Recognizing the value of science as a motivational tool, a decision was made to use the content of science as a vehicle to meet a broad range of instructional objectives. Subsequently a proposal was submitted to the State Education Department, Division for Handicapped Children. A grant was funded to the Yonkers Public Schools to conduct a special study institute on June 26-28, 1974. The objectives of this institute were:

1. To acquaint teachers of special education with the research and development in the areas of science education.

2. To have teachers become familiar with the content and materials developed by these curriculum projects.

3. To develop a philosophy and rationale for incorporating the content of materials in science into the total framework of classroom instruction.

4. To develop competencies in writing instructional objectives for the classroom.

5. To have experienced special education teachers and regular science teachers, develop instructional activities based on the content and materials of the science curriculum.

With these objectives in mind, the institute was conducted. During this inst'tute, 41 teachers of the handicapped and regular teachers from the Yonkers Public School attended and participated in a variety of activities that ranged from lectures on theory, content and concepts of science, developing instructional objectives, and preparation of instructional packages.

The methodology used in developing these competencies were through hands-on experiences both in large and small group, as well as in individualized activities. The success of this particular institute has long been established by the measurements of the increase in the utilization of the contents and materials of science within the classroom. The teachers from the Yonkers Public Schools who have participated in this institute have increased in their numbers of requests for materials from this content area to use within the classroom. Also, as teachers engage in discussions regarding the role of science, one begins to find their understanding of this discipline as a vehicle for the development of basic skills.

This achievement may very well prove to be an effective means of overcoming the dilemma of the incorporation os science into the regular school classroom. As teachers of the handicapped long recognize the individual differences of children, it is hoped that by the methodology by which they implement science in the classroom could well serve as a strategy for the regular classroom teacher.

CONFERENCE PLANNING COMMITTEE

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Joan Malanga	Coordinator Special Education, Yonkers Public Schools
Patrick Moore	Administrative Assistant for Special Education, Yonkers Public Schools

I C

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Professor - Science Education
State University College at Fredonia

and

Mr. Richard E. Miga
Director - Curriculum & Instruction
Chautauqua County BOCES

ACKNOWLEDGEMENTS

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Mr. Lawrence Gloeckler, Associate, Instructional Materials for the Handicapped

YONKERS PUBLIC SCHOOLS, YONKERS, NEW YORK - Dr. Robert F. Alioto, Superintendent

INSTITUTE DIRECTOR - Miss Joan Malanga, Coordinator, Special Education, Yonkers Public Schools

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Mr. G. Woo

PROGRAM OUTLINE

Wednesday, June 26, 1974

9:00 AM - Opening Comments and Greetings - Lawrence Gloeckler, Bureau of the Handicapped, New York State Education Department SEIMC Network.

9:30 AM - Overview of Programs in Science for the Handicapped - Richard E. Miga, Curriculum Director, Chautauqua County BOCES.
A brief overview was presented with respect to the philosophy and objectives of utilizing science programs with trainable, educable, and learning disability children. A brief summary was presented of what has been done within the Chautauqua County BOCES area in using science with such children. Dr. John Glenzer, Professor of Science Education, State University College at Fredonia, then presented an overview of the science curriculum development that has been taking place at both the national and local levels over the past 15 years.

10:00 AM - Philosophy and Curriculum Objectives.
Mr. Miga presented briefly the rationale for the institute and the objectives to be achieved. These objectives were:

(1) To acquaint the teachers of special education with the research and development in the areas of science education.
(2) To have teachers become familiar with the content and materials developed by these curriculum projects.

(3) To look at special programs in science that have been developed specifically for working with the mentally and physically handicapped.
(4) To develop a philosophy and rationale for incorporating the content of the materials of those science projects into the total framework of classroom instruction.
(5) To have experienced teachers develop instructional activities based around the content and materials of science.

10:30 AM - Program Presentations.
The following programs were overviewed with respect to their philosophy and approach in teaching science:

(1) Me Now - a lifestyle approach to programs for the educable mentally handicapped, developed for the biological science curriculum study.
(2) Science, A Process Approach
(3) Science Curriculum Improvement Study
(4) Elementary Science Study
(5) Conceptually Oriented Programs in Elementary Science

12:00 Noon - LUNCH

1:00 PM - An Indepth Presentation of the Me Now Program.
During the afternoon, the teachers in the institute were exposed to the content and activities associated with that program. Included in the activities was a brief presentation of the audio visual materials that were developed in conjunction with this program. Teachers were also presented several of the activities in a laboratory situation whereby they became familiar with the kinds of learning situations that educable children would go through within this program.

Thursday, June 27, 1974

9:00 AM - Large Group Activity I - Applying A Science Concept to the Learning of Children.
In this presentation, Mr. Miga presented a demonstration lesson in which all teachers participated. In the process of this activity, the intent was to show the teachers how a specific science concept, in this case the particle nature matter, could be developed with young children as well as children who had learning problems.

10:30 AM - Large Group Activity II - Using Science As A Tool for Basic Skill Development.
Dr. Glenzer then presented a similar lesson in a demonstration fashion with all teachers participating, showing how a specific skill, such as observation and classification, could be developed with the handicapped child.

12:00 Noon- LUNCH

1:00 PM - Small Group Activities.
In the afternoon, teachers worked in small groups in controlled activities. Approximately 29 learning stations were established in the building whereby the teachers went through many of the stations appropriate to their own particular age and learning level and conducted activities that were exemplary of all the curriculum projects that were overviewed. The teachers begin to get a feel for the kind of activities that these projects were developing, as well as an understanding of the content and the applicability to their own teaching situation.

Friday, June 28, 1974

9:00 AM - Work Session.
During the morning session, the teachers continued to work in small group and individual situations. They developed specific learning activities to be utilized within their own classroom situation. These activities were based on the philosophy, rationale, content, and specific learning situations that were discussed on the two previous days. Results of those activities constitute the major portion of this booklet.

The institute adjourned at 1:00 PM.

PRODUCTS DEVELOPED

Partivipating in this institute were teachers of the trainable, physically handicapped, emotionally disturbed, educable , resource teachers and learning disabilities classes from the Yonkers School District, as well as regular elementary classroom teachers and a few junior high school science teachers. The wide range of background and learning experiences made for a very interesting workshop.

As teachers intermixed in the development of their materials and activities, there was an exchange of ideas across the groups. The resulting products that follow, essentially constitute the activities, that these teachers developed for the specific area indicated. The format used was to have each teacher indicate the area that they teach and the grade level for which they suggest the activity take place. They then indicate a label or tag which is the identifying unit of activity. Following this, the specific objectives are indicated. In many cases, the objectives indicate a content based objective or an objective which calls for the students development of a process skill, vocabulary, communication skill, peer relationship skill, or other learning processes which the teacher deems to be valuable. A suggested list of materials is provided and a procedure whereby they can then begin to instruct the lesson.

The format followed seems to be fairly simple and yet helpful to the teachers who have developed these activities, as well as to other teachers who desire to duplicate

some of these activities in their own classroom. As in past worksnops, the institute staff feels that the activities developed represent those kinds of processes that are of value to that classroom teacher, and that in the process of developing a guide to instruct the lesson, that this guide is of value to other teachers. It is hoped that as teachers utilize this booklet, they would share with the above teachers their ideas and thinking with respect to working in science with the handicapped.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Intermediate

LABEL: Paper weight

OBJECTIVE: To make useful objects.

MATERIALS: Glass casters, plaster of paris, felt, various leaves or other objects, glue.

PROCEDURES: Put the leaves or objects in casters. Mix plaster of paris with water and place on top of the object in casters. Cut felt to fit caster. When dry enough, glue the felt to the plaster of paris.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Intermediate

LABEL: Taking and Giving Directions

OBJECTIVES:
1. Clarity in giving or receiving directions.
2. To realize the importance of accuracy.
3. To lay a foundation for the students for giving accurate and informative directions.

MATERIALS: None

PROCEDURE: Taking and giving directions is a game approach preparing students for map making. Students may be paired off with one member of each team assigned the task of giving directions while the other member is assigned to receive and follow directions. The exact wording of direction given is important and should be recorded in some manner for reference. This activity is for any level.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Intermediate

LABEL: Absorption

OBJECTIVES:
1. Students will place objects in water to observe the process of water replacing air.
2. Students will name objects which will absorb water and discuss any changes in size and color of the objects.
3. Students will demonstrate the process of absorption by using different materials.
4. Vocabulary development -- softer, harder, water, soak, air, swollen, absorb, decrease, increase.

MATERIALS: Fresh fruits, dried fruits (prunes, raisins, apples, beans), paper towels, cereals, sponge, pans, water.

PROCEDURES:
1. Place materials on the table and fill the pans with water.
2. Place a fresh fruit in one pan and a dried fruit in another pan. Students will observe the process of absorption using the vocabulary words to tell what is taking place. (soak, decrease, increase, harder, softer, swollen, etc.)
3. Students will also observe changes in size and color.
4. Students will follow the same procedures to demonstrate absorption using the other materials.

5. When the bubbles occur during the process of absorption with the dried materials, it will be pointed out to students that water is replacing the air in the dried objects. Also things will only dry when water is removed from an object.
Ex. - clothes in drier or hanging outside.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Intermediate

LABEL: Textures (Rough and Smooth)

OBJECTIVES:
1. Students will identify objects of different texture by touch.
2. Students must classify objects into groups according to rough and smooth.
3. Students will use vocabulary words to describe textures.
4. Vocabulary development -- rough, smooth, texture, soft, coarse, hard.

MATERIALS: Texture board, velvet, sandpaper, plastic, leather, felt, wax paper, aluminum foil, flour.

PROCEDURES:
1. Show the students two textures, one rough and one smooth. After observing the two textures, students will tell the difference between the two textures.
2. Students will name objects with smooth and rough textures.
3. After arranging objects on a table, each student will be blindfolded and asked to identify the objects according to texture.
4. Students will remove blindfolds and group the objects visually.
5. The students will be asked to bring into class objects with rough and smooth texture.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area ED

Grade Level Intermediate 5,6,7

LABEL: Evaporation

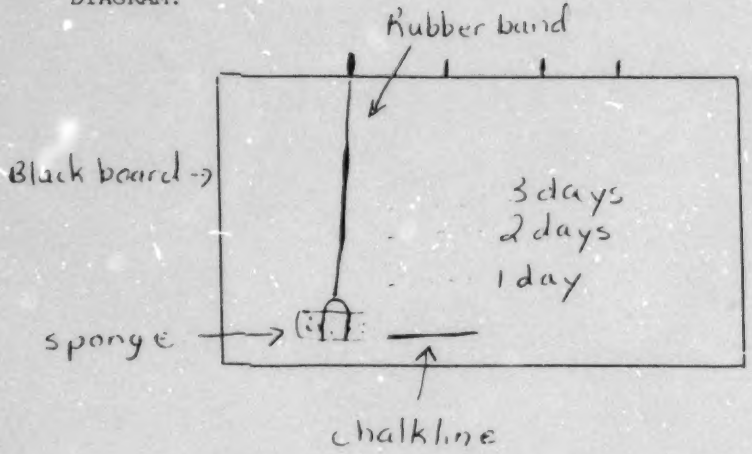
OBJECTIVES:
1. Have students observe a process of water evaporation.
2. Have students engage in a systematic measurement and recording of day to day observations.
3. Develop concept vocabulary -- saturation, absorption (sponge), tension (rubber band), evaporation, water vapor.
4. Develop habits: systematic observation and recording.

MATERIALS: Rubber bands, sponges, blackboard, chalk, rulers, small pails, sponge, harness.

PROCEDURES:
1. Discuss weather, rainfall, how we assume moisture gets into the air.
2. Saturate sponges with water from pails. Suspend sponges from above blackboard by rubberbands. Make chalk line at saturation level of sponge (after dripping stops).
3. Make a diagram. Measure daily (for three days) with chalk lines on board, the rise of the sponge. Record measurements on board and on the diagram.
4. Discuss where the water disappeared.

(see diagram on next page.)

DIAGRAM:



ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR-ED.

Grade Level Intermediate/Secondary

LABEL: Body Cells Absorbing Food

OBJECTIVES:
1. Define cell and learn about the cell structure (membrane).
2. Learn how cells receive food through the membrane.
3. Define osmosis and learn of its function.
4. Learn how the process of osmosis functions in our body.
5. Learn how the cell membrane allows food to enter the cell through the wall of the cell membrane.

MATERIALS:
1. Gelatine power (box), clear.
2. Plastic bags (from super market), medium size.
3. Corn starch (super market).
4. Iodine (drug store), small size.
5. Container - beaker - medium size.
6. Hot plate.
7. Pot for cooking gelatine (small).

PROCEDURES:
1. Cook gelatine in water (liquid solution), hot.
2. While hot, mix starch (2 tablespoons).
3. Pour solution into plastic bag (size of lemon).

4. Tie top of each bag with string.
5. Let dry over night (solidify).
6. Iodine solution drops into cup of water.
7. Place bag (cell) into iodine solution.
8. Let stand for one (1) hour.
9. Starch will turn black.

Explanation: Iodine solution penetrates bag (cell).

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area ED Resource

Grade Level Middle School

LABEL: Compression of Some "Common" Liquids by Manual Efforts

OBJECTIVES:
1. To develop the skill of making objective statements based on evidence.
2. To transfer this skill into other related areas. For example: this can be used to combat gossips, prejudice statements.

MATERIALS:
1. Two plastic syringes of the same size.
2. Liquids -- water, alcohol, oil, and any other liquids that are not toxic or dangerous to the skin.

PROCEDURES:
1. Fill one syringe with water, fill the other with air.
2. Mark both syringes.
3. Seal the ends of the syringes with finger.
4. What will happen?
5. Repeat the procedure with each liquid.
6. Push in piston of the syringes - one at a time.
7. What kind of statement can we make?

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area E.D. & Resource

Grade Level Middle School

LABEL: Taking a Closer Look at Some Solid Objects

OBJECTIVES:
1. To recognize the fact that apparent solids are not "100%" solid.
2. To reinforce the concept that things are the combination of smaller particles.
3. To develop a "mode of thinking" of testing one's "logical" conclusion.
4. To form a tentative concept between the weight and hardness of solids (density concept - this can be pursued further in another activity).

MATERIALS: Sponge, cube of soft wood, hard wood, a short piece of soft metal, a short piece of hard metal (cut from a rod), a vice grip.

PROCEDURES:
1. Show children the different objects.
2. Ask them to classify the objects -- gas, liquid, or solid.
3. Ask them to name some characteristics of the objects.
4. Do you think there are spaces inside these objects?
5. If so, how can we prove it?
6. If not, how can we prove it?

ACTIVITY CARD — SPECIAL STUDY INSTITUTE - June, 1974

Area EMR ED.-Resource — Grade Level 9th H.S. Boys & Girls

LABEL: Setting a Table for a Family of Four for an Informal Luncheon.

OBJECTIVES:

1. Given the correct amount of place settings for four and the luncheon menu, the students will be able to demonstrate certain skills in setting a table.
2. The students will be able to identify the kinds of equipment needed for setting a table for a given menu.
3. The students will develop visual and manipulative skills.
4. The students will be able to discriminate left and right, opposites, adjacent to, distance or space relationship.
5. The students will develop some knowledge in meal planning.
6. The students will be able to apply what has been learned at home in any given situation.
7. The students will be able to read and follow simple directions given in setting a table.

MATERIALS: Table, place mats or table cloth, plates, salad plates, cups & saucers, glasses, knives, forks, spoons, dessert dishes, napkins, center pice (flowers or fruit bowl) and a luncheon menu - direction sheet on steps in setting a table for an informal luncheon, a tray or side table.

PROCEDURES:

1. Group students in semi-circle around the table or board.
2. Give students study sheet for table setting, step by step procedures.
3. Give students a copy of the luncheon menu and available visual aids.
4. Students read direction sheet during the development lesson. Each step is explained by the teacher.
5. Students study, examine, and determine materials to be used.
6. Teacher will demonstrate with students' assistance the correct procedures in setting a table for an informal luncheon.
7. Teacher summarize work covered.
8. Students select necessary equipment needed to set a table for four, keeping in mind the luncheon menu.
9. Representative Practices: Students practice setting a table for four. Teacher observe students to determine developmental skills and procedures.
10. Vocabulary development -- utensils, equipment, place setting, mat, table cloth, opposites, adjacent, distance, space, relationship, menu, distance, place, setting, dessert, salad, group, cooperation (group or individual) position.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Secondary

LABEL: Seasonal Changes Outside Field Trips - Part I

OBJECTIVES:
1. To be able to discover and observe changes in the environment and organisms.
2. To describe seasonal changes by discussion, recording some observations on charts, story form transparencies or filmstrips.
3. To understand reasons for seasonal changes i.e., earth tilted on axis, etc.
4. To determine if changes observed in organisms are related to changes in environment.
5. To develop vocabulary -- migration, seed travel, life cycle stages, position of sun (high, low).
6. To develop an efficient method of recording observations.

MATERIALS: Selected field trip area(s), various recording and measuring materials.

PROCEDURES:
1. Select area to study
2. Acquaint children with purpose of field trip. Discover organisms in area. Discover conditions under which they are found.
3. Describe the reasons for seasonal changes.

4. Give the children an idea of what to look for.
5. Take trip.
6. Group for methods of recording.
7. Make recordings.
8. Share recordings.
9. Discuss information.
10. Make follow up trips when major changes are obvious. Make further recordings, compare earlier recordings.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Secondary

LABEL: Adaptability of Nature's Animals to Changes in Environment - Part II

OBJECTIVES:
1. To be able to discover and observe changes in the environment and animals.
2. To understand conditions necessary for the survival of nature's animals.
3. To understand that seasonal changes in animals are necessary for their survival.
4. To understand that some animals cannot adapt and must change their environment, i.e. migration.
5. To understand that man is the most adaptable animal due to his intelligence. Man can survive almost anywhere.
6. To understand adaptability with relation to evolution.
7. To develop vocabulary -- migration, vestigial, evolution, adaptability, environment, etc.

MATERIALS: Selected field trip area(s), materials for recording observations.

PROCEDURES:
1. Conduct various activities to determine the essentials for survival.
2. Discuss how animals adapt to the seasons and changing environment.

3. Discuss evolution for survival.
4. Discuss migration.
5. Select area(s) for field trip.
6. Prepare children with an idea of what to look for on the field trip.
7. Take field trip.
8. Make observations.
9. Record observations.
10. Discuss observations.
11. Discuss how man adapts to environment. Show how we can change our environment and then compare man to the rest of the animals.
12. Take a follow up trip(s) when conditions change sufficiently. Make new observations -- make comparisons with old observations.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Secondary

LABEL: Growth and Development - Part I

OBJECTIVES:
1. Identify male and female characteristics.
2. Recognize physical changes that have occurred from pre-puberty to adolescence.
3. Develop biological vocabulary for body parts.

MATERIALS: Pictures, body models, slides, filmstrips.
"Becoming a Woman" - Guidance Associates, Inc., Pleasantville, NY
"Becoming a Man"

PROCEDURES:
1. Homogeneous grouping - boys and girls - approximately same emotional, physical and social level.
2. Using pictures and models establish male-female characteristics and vocabulary.
3. Models, slides, filmstrips -- distinguish physical changes from ages 6-13.
4. Pass out individual sheets with male-female figures to identify and properly label body parts.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Secondary

LABEL: Growth and Development - Part II

OBJECTIVES: Students will identify and distinguish functional roles of organs related to sex - male and female.

MATERIALS:
1. Me Now - Unit IV - Slides 91-103.
2. Facts About Sex, Sol Gordon - Printing House of Charles Brown, Inc. Plainview, New York 11803.
3. "Becoming a Man" - Guidance Associates, Inc.
   "Becoming a Woman" - Pleasantville, NY

PROCEDURES:
1. Description of egg development in female, various organs and functions.
2. Description of sperm formation in male detailing various organs and functions.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area EMR

Grade Level Secondary

LABEL: Ecology

OBJECTIVES: To learn the interrelationship of all living things in their environment.

MATERIALS: Film strips, construction paper, posterboard, various magazines.

PROCEDURES: Observe filmstrips. Cut pictures from magazines and make posters. Make charts.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LD

Grade Level Primary

LABEL: Using the Sense of Touch

OBJECTIVES:
1. To use the sense of touch instead of sight.
2. To recognize the differences in shape and texture of various objects by touching.
3. To define and develop the vocabulary words: smooth, rough, round, square, thick, and thin.

MATERIALS: Drawstring bag, circles and squares made from various materials of different textures.

PROCEDURES: Place various shapes in bag. Review rough and smooth by asking children to identify various textures around the room. Review round and square on the blackboard. Have child close his eyes and place his hand in the bag. Before he withdraws the object, he must describe it using reviewed vocabulary. He must include shape and texture. After he does so, he may look at it to see if he is correct.
Proceed until each child gets a turn. This may also be used as a game. If the child describes it correctly, he may keep the object. The child with the most objects wins.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LD

Grade Level Primary

LABEL: Directionality

OBJECTIVES:
1. To develop gross-motor coordination.
2. To review the differences in the colors of objects.
3. To review and refine right-left directionality.
4. To further understand the vocabulary terms right, left, up, down, raise, lower, rectangle.

MATERIALS:
rectangular red blocks
rectangular green blocks

PROCEDURES: Review the shape of the blocks. Review colors. Ask children to raise right hand and identify it. Then raise left hand and identify it. Have children lie down on backs with arms out straight. Place 1 red block in right hand and green block in left. Have children identify color and then hand (red-right, green-left). Alternately call out directions and ask students to follow them, e.g. raise the hand with the green block, which hand is it? etc. Students may have difficulty identifying hands in a prone position. Continue the activity until they can identify hands or until they become bored.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

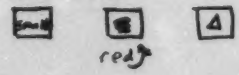
Area LD

Grade Level primary

LABEL: Color, Shape & Size

OBJECTIVES: To reinforce concepts of color, shape, and size.

MATERIALS: 1 set of Attribute Blocks (which consist of:)
4 large triangles (red, blue, green, yellow)
4 small triangles (red, blue, green, yellow)
4 large squares (red, blue, green, yellow)
4 small squares (red, blue, green, yellow)
4 large diamonds (red, blue, green, yellow)
4 small diamonds (red, blue, green, yellow)
4 large circles (red, blue, green, yellow)
4 small circles (red, blue, green, yellow)
3 homemade dice, 1 dice has 4 colors - 1 on each side; second dice has outline of shapes on it, - one on each side; third dice has large written on 2 sides and small written on other two sides.

PROCEDURES: Children get into a circle (approximately 4 children) and take turns rolling dice (all 3). Then they choose from the pile of attribute blocks what dice says. For example one child might roll: 

and would have to select the small red triangle. The dice keep rotating till there are no more attribute blocks, whoever has the most attribute blocks in the end, wins.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LD

Grade Level Intermediate

LABEL: Setting the Table

OBJECTIVES:
1. To organize a concept of left and right order.
2. Good eating habits, table manners.

MATERIALS: Plates, cups, forks, spoons, saucers, knife, place mat.

PROCEDURES:
1. Distribute the place setting to the children.
2. Have a student make a place setting. Then have a partner on the opposite side of the table make a place setting to match.
3. Counting number of utensils needed to match people to be seated.
4. Show diagram of a set table.
5. Give children written directions.
6. Give verbal directions.
7. Set time limits to meet needs and capacity of children.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LBD

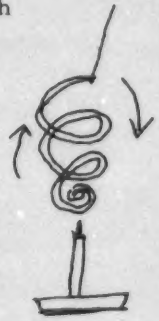
Grade Level 4 - 6

LABEL: Why Does the Wind Blow? - I

OBJECTIVES:
1. Define wind (moving air)
2. Develop fine motor coordination.
3. Develop eye-hand coordination.
4. To understand concepts of heat, direction, molecular expansion, movement.
5. Develop vocabulary -- spiral, direction, expansion, movement.

MATERIALS: Heavy paper or oak tag, scissors, candle, string.

PROCEDURES:
1. Draw a spiral on the oaktag.
2. Make a small hole in the center and cut out the spiral with scissors.
3. Run a thread through the hole and tie a knot in the end.
4. Hold spiral over a lighted candle.
5. Heat causes air to expand which, in turn, moves spiral in clockwise direction.



oaktag

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LBD

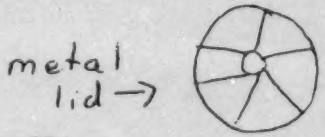
Grade Level 4 - 6

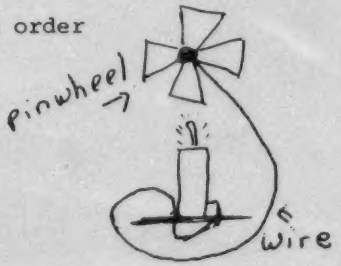
LABEL: Why Does the Wind Blow? - II

OBJECTIVES:
1. Define wind (moving air)
2. Develop fine motor coordination.
3. Develop eye-hand coordination.
4. To understand concepts of heat, direction, molecular expansion, movement.
5. Develop vocabulary -- pinwheel, direction, expansion, movement.

MATERIALS: Lid from metal can, scissors, candle, wire for stand for pinwheel.

PROCEDURES:
1. Make a small dent in center of lid.
2. Cut slits around lid, leaving center intact
3. Turn each strip of metal to form pinwheel.
4. Place wheel on a pointed wire stand.
5. Place over lighted candle or other source of heat in order to turn the wheel.





ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LBD

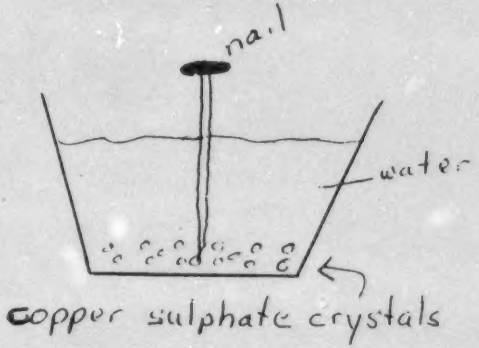
Grade Level 4-6 grades

LABEL: All Things Are Made Up of Small Particles

OBJECTIVES:
1. To understand that the universe is composed of many smaller parts.
2. To understand that all matter is composed of smaller particles.
3. To understand that the eye alone is not capable of detecting the composition of matter.
4. To stimulate children to use microscopes in groups.
5. To develop vocabulary -- composed, universe, particles, detecting, microscope.

MATERIALS: Large nail, glass jar, copper sulphate crystals, water.

PROCEDURES:
1. Place copper sulphate crystals in jar half filled with water.
2. Place nail in solution - leave over night.
3. Observe changes in nail coating; nail becomes coated with copper.
4. Children view this under microscope.



ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LBD

Grade Level Elementary

LABEL: Following a Recipe

OBJECTIVES:
1. To learn to measure liquid and dry ingredients.
2. To learn how to follow a recipe.
3. To strengthen sequencing skills.
4. To develop reading vocabulary.

MATERIALS:

1 box confectioners sugar
1/2 stick butter
3 tablespoons milk
1 egg
4 oz. melted unsweetened chocolate
1/2 cup walnuts
1 square pan
1 spatula
1 large bowl
paper & Pencil
knife
measuring spoons
measuring cups

PROCEDURES:
1. Teacher explains class is going to make fudge and she goes over recipe, writing down each step on board. (ingredients & procedure).
2. Class reviews recipe and discusses terms they don't know.
3. Each child is given a job and class makes fudge.
   a) grease square pan with butter
   b) mix all ingredients and stir with spatula till smooth

c) put mixture in square pan and refrigerate to chill
d) cut into squares and eat

4. Entire class then copies down recipe on paper and reads it back to teacher.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LD

Grade Level Middle School
1st - 4th reading level

LABEL: Estimation in terms of visual imagery and visual memory

OBJECTIVES: To estimate amounts of articles in familiar boxes such as eggs in cartons.

MATERIALS: Egg cartons, dog biscuit boxes, quart containers, pill boxes, 2 oz., 3 oz., 1 oz., medicine bottles, anything that shows specific measurements.

PROCEDURES: Show 1 doz. eggs (balls), 1/2 doz. eggs (balls), have children place eggs in proper container.

Motivate with all containers comparing amounts to be used for each. Liquid and dry measures to be discussed.

Thought Questions: Which is more: 1 cup dry or 1 cup liquid measure? Which is more: 1 cup or 1 tablespoon, also how many tablespoons = 1 cup? 1 foot = 12 inches (use of ruler if necessary). Draw size comparisons for suggested amounts of ingredients displayed.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LD

Grade Level Advanced - LD, Middle
School age, 4-6th reading

LABEL: Direction Following in a Game Situation

OBJECTIVES: Read a strip of directions and follow through with directions, using a Charades situation to be done on any level, for any subject.

MATERIALS: Strips of paper folded up, large box, rulers, chalk, blackboard.

PROCEDURES: Write down:

a) Stand on left leg and jump 7 times.
b) take ruler, measure your left foot, right foot.
c) using ruler, make a chalk line on blackboard of 5 inches, 8 inches, 10 inches.
d) do the same without ruler.
e) turn to your right, stand on right leg and hop 4 times.
f) raise left arm above head. How many fingers and toes are down.
g) measure your foot in shoe and out of shoe.

Note: Anything you can think of is good for measurement of their bodies and/or objects in the room.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area LD

Grade Level Advanced 4-6 grade or middle school age

LABEL: Baking Brownies from "Scratch" for Measurement

OBJECTIVES:
1. To read
2. To follow verbal directions
3. To measure prescribed amounts.
4. To follow written directions.
5. To manipulate and evaluate life experiences.

MATERIALS:
(a) 1 cup flour
1 cup sugar
1/2 cup milk
1 egg
2 tbsp. margerine softened
2 squares semi-sweet chocolate melted
1 teaspoon baking powder
1 teaspoon vanilla extract.
(b) Use of a Home Economics Room
(c) Ingredients

PROCEDURES:

1. Give each child printed copy of ingredients and directions. For this, all ingredients are mixed well and baked at 350 degrees farenheit in a 12 inch floured and greased pan.
2. Group children in 2 or 3's. All children must be equipped with a Home Ec. unit consisting of mixing spoons, etc.
3. Talk to each group about measuring correctly and mixing well. Bake 25 minutes. Each recipe serves about 8 pieces.
4. Make sure that each measuring utensil is explained such as liquid measure, dry measure, tablespoons, teaspoons.
5. Talk about heating and cooling, fahrenheit and centigrade.

Note: This was done and was a great success. We touched on scientific, mathematic, life experiences, senses, all aspects.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Adj. Secondary

Grade Level High School

LABEL: Earthquake

OBJECTIVES:
1. Defining an earthquake and understanding how it works.
2. Understanding how an earthquake can affect human life.
3. Developing cooperation, interaction, and communication in a group process.
4. Vocabulary development -- crust, mantle, core, vibrations, rumblings.

MATERIALS: Large air mattress, plastic cover for mattress, objects to represent buildings and people, plastic animals, small plants, pails of wet sand.

PROCEDURES: A continuation to previous lesson in which was discussed the composition of the earth to show the layers, and the movements under the earth's surface which often affect human life.

Students cover entire surface of plastic placed on deflated air mattress with wet sand, forming hills, valleys, etc.

Objects and people are then placed on surfact to make towns, cities, etc.

Air mattress is gradually inflated and students observe the effects of an earthquake.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Adj.

Grade Level Middle School

LABEL: Interdependence of Living Things in Nature

OBJECTIVE: Students will observe interdependence in nature among living things.

PROCEDURE: Students will understand concept and then go on a field trip and record their own observations -- student centered.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Adj.

Grade Level Middle School

LABEL: Matter Occupies Space and Has Weight (solids, liquids, gases)

OBJECTIVES:
1. Student will learn through tactile module that matter occupies space.
2. Student will learn through visual mode that liquid occupies space.
3. Through observation, students will see that gases occupy space.
4. Through observation, students will realize that solids, liquids and gases have weight.
5. Students will learn the proper use of scales which will manifest itself through accurate observation of weights.

MATERIALS: Pails, hard balls, outdoor resources, scale, small shovels, plastic seal bags, balloons, small strips of rope.

PROCEDURES: to show Space
1. Students feel smoothness of earth (level). Students then dig small holes, put hard balls in, (one to a hole), then replace dirt and again feel ground. They will feel hill and realize that ball has taken place of dirt.
2. Students move to stream and fill pails full with water. They then fill cups with water, pour cup of water into each pail and water will flow over top showing that added water took up space in pail.

to show space

3. Students will crumple plastic bags in hands, finding that plastic will be pliable. Then students will run and accumulate air in bag. They then seal bag and again try to crumple it up in hand, this time bag does not give and eventually pops showing that air has taken up space in bag.

to show weight

4. Students weigh empty pail on scale. They then fill pail with solids from environment (rocks, dirt, twigs, etc.) and weigh again. Observe change and record.
5. Repeat procedure with liquids (water, sap, etc.). Observe and record rise in weight.
6. Balance a twig with an inflated balloon on either end, over a rock. Put small hole in neck of one balloon and slowly deflate. Balloon filled with air will lower showing weight.

A.

B

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area TMR

Grade Level Primary

LABEL: Spatial Relationship - Stage I

OBJECTIVES:
1. To help each pupil distinguish and realize their positions in space.
2. To develop conceptual skills in directionality by using concrete examples.
3. To develop a vocabulary: in front of, behind, in back of, on top of, above, below, side of, close,closer, far, furthest, to one side, to the other side.
4. To enrich each pupil's ability in learning sequential coloring of objects, looking at pictures, and simple reading.

MATERIALS:
1. Record & record player or this may be done orally.
2. Pupils in class
3. Desk
4. Chairs
5. Windows

PROCEDURES:
1. Make two lines of pupils back to back, to find out if they know all basic body parts.

2. Depends on procedure one, if the pupils know and can identify all body parts; then proceed to next objective. If pupils cannot identify all basic body parts, then teach body parts with use of a record. Can also be done orally.
3. Use pupils in the group and develop concepts discussed in objective three. (i.e., John stand in front of Mary, to the side, to the other side, behind, put your hand above Mary's head, point below the window, point to the ceiling, point to the floor).

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area TMR

Grade Level Primary

LABEL: Visual Discrimination, Number, Measurement, Space, House, Garage and Tree - "Piaget Early Childhood Curriculum"

OBJECTIVE:

1. To help pupils compare knowledge obtained in stage I to stage II.
2. To help pupils visually realize position in space.
3. To develop pupils eye-hand coordination.
4. To develop pupils manipulative skills.
5. To help pupils see the relationship between motor spatial relations and visual and motoric spatial relationships.
6. To enrich pupils perceptual and conceptual abilities in spatial relationship.

PROCEDURES:

1. Show pupils how to set up the house, garage and tree.
2. Set up two groups, group I will manipulate objects as instructed, group II will observe.
3. Group II set up materials and manipulate as instructed.
4. Show pupils how to distinguish close, closest, far, farther away.
5. A field trip outside school building to observe buildings, houses, playground equipment etc. and determine objectives in both units.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area TMR

Grade Level _____

LABEL: Reading A Thermometer

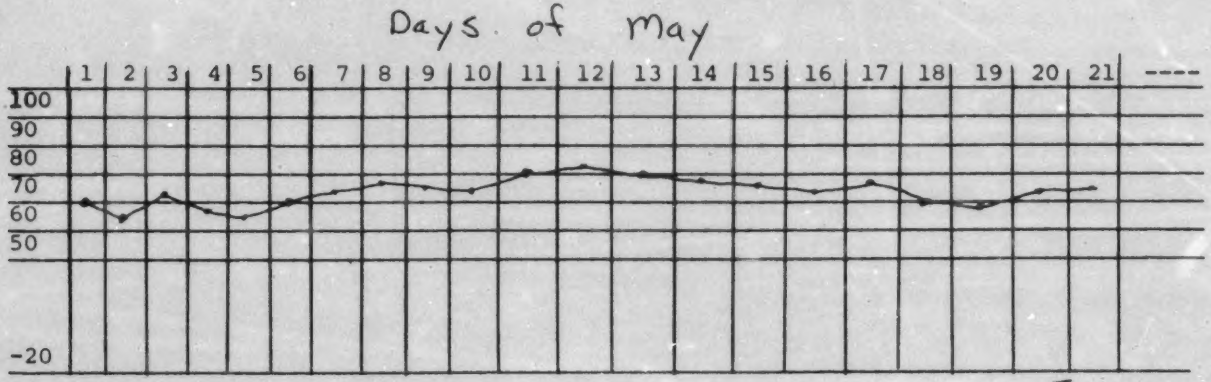
OBJECTIVES: To make children aware of temperature -- the temperature of the room, the temperature outside the room. To understand the concepts of hot, cold, mild, etc. Develop vocabulary -- thermometer, tube, mercury, fahrenheit.

MATERIALS: One dozen inexpensive thermometers. Individual folder containing a calendar. Obtain supply of calendars from the local banks.

PROCEDURES: We wish to develop the concept of day by day weather chart to become aware of the variations in temperature day by day. At the end of the week we will compile the various temperatures. Pick a month and start your lesson on the first school day of this month.
Each child will compile a day by day reading and a weekend total.
At the end of the month he or she will have a picture of the variations in temperature for an entire month. Then we will make a graph to show the changes for a month.

Temperature reading for May 1, 1974 - 70 degrees.
Children will mark this information on the calendar in their temperature folders. Example: Mary Smith - Wednesday, May 1 - 70 degrees and so on for the rest of the month.

Children are encouraged to listen to radio and TV to get the weather reports. Then check this against our classroom thermometer.
Note: mercury is the substance inside the thermometer that shows us the temperature. It can be of silver or red in color. A chemical is added to the mercury to make it red in color. This makes it easier to see and read.



Graph of temperature for month of May

May 1974

Mary Smith

SUN	MON	TUE	WED	THU	FRI	SAT
			1 70°	2 65°	3 73°	4 68°
5 66°	6 70°	7 74°	8 78°	9 77°	10 74°	11 80°
12 82°	13 80°	14 79°	15 77°	16 74°	17 78°	18 70°
19 69°	20 73°	21 74°				

temperature calendar ↑

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area TMR

Grade Level _____

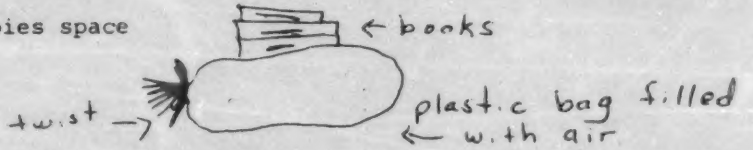
LABEL: A Unit on Air

OBJECTIVES: To learn that air is a real substance - air occupies space, air is a real substance, air is needed to keep a fire burning.

MATERIALS: Candle, glass or plastic tumbler, plastic bag, plastic twist or string.

PROCEDURES: We are completely bathed by air from birth to death. We live in it, move in it, and grow in it. We do not have to buy this vital substance, for it exists in great quantities ready to fill our lungs at all times. We live at the bottom of a vast "ocean of air" which completely envelops the earth.

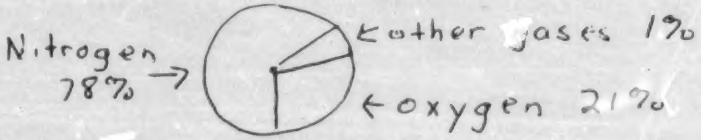
1. Air occupies space



We blow up the plastic bag and close the opening with a plastic twist. With the air trapped inside the bag, it will hold a pile of books. Children grasp the concept of how an automobile can ride on tires containing only air.

2. Air is a real substance

Illustration of what air is made of:



3. Air is needed to keep a fire burning

Candle burns inside of glass or plastic tumbler for a few seconds. Candle flame flickers and goes out. Why? All the air is used up. Air is needed to keep fire burning.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K

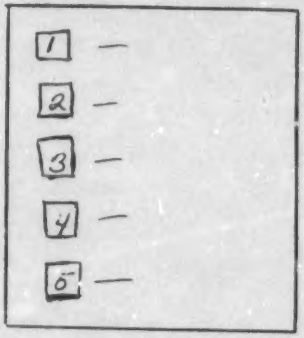
Grade Level Primary

LABEL: Matching, Numerical Order, Counting

OBJECTIVES: One-to-one correspondence, matching.

MATERIALS: A sheet with vertical numbered squares, red & blue cubes with numbers, pipe cleaners.

PROCEDURES: Child matches red cubes to numbered squares, puts pipe cleaners next to each cube as pointer, then finds correct blue cube to correspond.

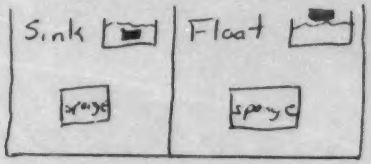


ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K

Grade Level Primary



LABEL: Sink or Float

OBJECTIVES: Develop observation skills and classification.

MATERIALS: Cover a tagboard with clear contact paper.
Short clear plastic container half full of water.
2 sponges.
Box of small objects like wood beads, ping pong ball, washers.

PROCEDURES: Child tests each object, one at a time and determines which side of sheet to place it on.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary

LABEL: Working With Determining Quantity and Weight of Bird Seed in a Large Jar

OBJECTIVES:
1. To develop ability to estimate by looking at large quantities of an item too great to be counted singly.
2. To learn a more exact way of counting the bird seed in the jar.
3. To learn how to determine the total weight of the seed.
4. To enable students to do this alone using other mediums (rice, peas, etc.) made available to them.

MATERIALS:
1. A large jar (1/2 gallon capacity or greater) filled with bird seed.
2. Large packages of other grains such as peas, rice, popcorn seeds etc. available for student use after demonstration.
3. Eight small scales provided (or however many are needed) so that groups of 4 can work together.
4. Very small paper cups.
5. Paper and pencils for recording purposes.

PROCEDURES:
1. Students are asked to simply try and guess how much bird seed is in the jar. Records of guesses are made by a secretary chosen from among the children.

2. Children are asked to name more exact ways of determining amount.
3. Idea is evolved that if you fill 1 small cups full of bird seed and count it,then amount of entire jar can be determined by emptying jar into containers and counting number of containers.
4. Children are encouraged to break up into groups and experiment with estimating and then more exact methods of counting different materials made available (mentioned under materials).
5. Students are next asked how weight may be determined (short of weighing entire jar with contents).
6. Idea is evolved that if you fill 1 small cup full of bird seed and weigh that on scale, you can determine weight of that small amount. Then you can fill the cup and empty it repeatedly, keeping records of how many cups you had to fill to empty large container. The original amount of the contents of the small cup can be multiplied times the number of cups needed to empty the container. (or this can be done with addition).
7. Students then work in groups experimenting with estimating, then more exactly determining weight of other materials made available.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area 1st gr.

Grade Level Primary

LABEL: Changes

OBJECTIVES: Chemicals interact and cause changes. Apply this to peer interaction and possible changes in behavior. Become more aware to self and others.

MATERIALS: Ferrous Sulphate, beaker and water and thermometer.

PROCEDURES: Pour some ferrous sulphate into beaker, pour in some H_2O, place thermometer in, make observation, temperature rises. Explain interaction of chemical and water causes temperature rise.
Now apply how sometimes our interaction with another can cause our tempers to rise. Have children discuss how this has happened to them. How could this have been prevented. How can you help someone who seems to have a "lead" interaction with others. Name some good interactions and why they are good. If we know something will cause a "lead" outcome, then don't mix - the solution - try to find a way to "curb the rise."

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary

LABEL: Preparation of Jelly Apples

OBJECTIVES:
1. To learn to follow directions in sequence.
2. To learn exactly what ingredients are needed for the making of jelly apples.
3. To learn the importance of careful measuring in order to obtain desired results.
4. To understand the use for a candy thermometer.
5. To understand that sugar gives off tremendous heat when held over a fire.
6. To learn about the different stages of cooking jelly.
7. To develop care in handling hot items.
8. To develop vocabulary -- candy thermometer, "hard-crack" stage, "soft jelly" stage, skewer.

MATERIALS:
12 small red (Macintosh) apples washed and dried without stems.
12 wooden skewers
2 cups of sugar
1/2 cup light corn syrup
3/4 cup cold water
red food coloring

PROCEDURES:

1. Teacher would discuss with the children the need for a plan (recipe) before beginning any task.
2. Teacher discusses organization and sequence of materials to be used in project.
3. Teacher discusses necessity of having a way of determining heat of liquid.
4. Discussion: what happens to jelly during the "soft jelly" stage, "hard crack" stage. Children would come to realize why soft jelly stage is not acceptable for jelly apples.
5. Group discusses the fact that sugar mixture must be heated to 300 degrees. Mixture is extremely dangerous to handle at this temperature. Candy thermometer is designed to withstand being submerged in liquids of high temperature.
6. Group can share responsibilities in preparation of jelly apples, provided they are properly furnished with oven mitts. Some children can mix the various ingredients together over a double boiler. After mixture is blended, another child may submerge the candy thermometer in the liquid (partially). Have two children keep track of how long it takes for the liquid to reach hard crack stage. Group as a whole can make observations as to what happens to the mercury in the thermometer as time progresses. A small group can put skewers in apples. Children are shown the proper way of dipping apples by tipping pan slightly, turning apples so that they become completely covered and allowing excess liquid to

drain off. Apples are then placed upside down on paper.

7. While waiting for jelly to harden (approximately 15 minutes) teacher can have students summarize steps followed to get successful jelly apples and review scientific observations.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area 2nd grade

Grade Level Primary

LABEL: Temperature

OBJECTIVES:
1. To show workings of a thermometer.
2. To learn vocabulary -- thermometer, mercury.
3. To show how heat effects a thermometer.
4. To show how cold effects a thermometer.

MATERIALS: Jar with water, stopper with glass tubing, red ink, pan with boiling water.

PROCEDURES:
Place drop of red ink into jar with water.
Replace Stopper on jar.
Place jar in boiling water.
Observe action of water when stimulated by heat.
Observe action of water as it begins to cool.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area 2nd grade

Grade Level Primary

LABEL: Characteristic Change of Bones

OBJECTIVES:
1. To show characteristics of a bone.
2. To observe action of vinegar (an acid) on a bone.
3. To show bodies need for replenishing calcium.
4. To show importance of a good diet.

MATERIALS: Wishbone from a chicken, jar with cover, vinegar.

PROCEDURES:
1. Place wishbone in the glass jar.
2. Cover wishbone with vinegar.
3. Replace cover on jar and leave overnight.
4. Remove bone and observe changes.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary

LABEL: Under and Over

OBJECTIVES: To demonstrate the difference between under and over.

MATERIALS: basketball

PROCEDURE:

1. Have students form a single line.
2. Explain to children "we are going to play a game called under."
3. Have each student spread their legs to form a tunnel.
4. Give the ball to the first child and have him hand it to the next under his legs.
5. After they have completed this task, have the students play a game called over.
6. The first student passes the ball over his head to the child behind him.
7. This may also be combined into an under and over game where the first child passes under and the next over, etc.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary

LABEL: Doughnut Pyramid (sorting)

OBJECTIVES:
1. To identify circles of different circumferences.
2. To identify different shades of colors.
3. To understand concepts (wider, narrower; darker, lighter; larger, smaller.)
4. To recognize the primary colors - red, yellow, blue.

MATERIALS:
1. A cone that stands upright on a flat surface.
2. Circles of assorted colors and sizes.

PROCEDURES:
1. Arrange circles in a row according to shades of colors. (e.g. - darkest to lightest, or visa versa, family of blues, family of reds, family of yellows.)
2. Arrange circles on a pyramid according to size (e.g. largest at bottom, smallest at top.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary

LABEL: Busy Box (building motor and eye-hand coordination)

OBJECTIVES:
1. Develop manual manipulative coordination skills.
2. To learn to recognize different uses of objects.
3. To learn directions such as left, right, up, down.
4. To understand concepts of opposites (e.g. in-out, open-close).
5. Develop vocabulary: open, close, up, down, in, out, push, pull, etc.

MATERIALS: assorted manipulative materials (e.g. a crank, a bell, a sliding drawer, etc.)

PROCEDURES:
1. A toy telephone dial - a) child explores how it moves. b) Ask child to turn dial from a designated number and back.
2. A drawer - a) child explores how it moves. b) ask child to hold drawer at different places and/or angles to find the easiest or or hardest way to move it.
3. A crank - a) child explores how it moves. b) connect crank to another object, (e.g. a toy windmill). Have child explore turning the crank to see how it moves windmill blades.
4. A knob - a) child explores how it moves. b) turn knob fast or slow. c) turn knob from left to right or visa versa.

Continue the above procedures using a variety of other objects (e.g. a bell, a train on a track, a sliding door, a wheel).

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary

LABEL: Plants - I

OBJECTIVES: To have children observe that plant stems are made up of tubes which carry nourishment up to the leaves of the plant.

MATERIALS: Stalk of celery, plastic container, red food coloring, water.

PROCEDURES: Fill container with water, add one drop of food coloring to water. Place fresh stalk of celery in colored water. In following day, result will appear.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Req.

Grade Level Primary

LABEL: Plants - II

OBJECTIVES: To observe that green plants give off oxygen.

MATERIALS: Test tube, plastic container, light source, Elodea plant.

PROCEDURES: Fill plastic container half way with water. Fill test tube with water, invert test tube in container without allowing water to escape from test tube. Place test tube at a slant in container. Place elodea plant in inverted test tube.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K

Grade Level Primary

LABEL: Magnets - Who Can Catch the Rabbit?

OBJECTIVES: Experience the force of same and opposite poles of magnets.

MATERIALS: 3 bar magnets or more. Pictures of 2 rabbits and a dog. Attach small cardboard backed pictures to magnets so that back of one rabbit and front of dog are same poles, back of other rabbit is opposite pole.

PROCEDURE: Child pushes dog behind rabbit to chase him, then uses other rabbit.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K-6

Grade Level Primary - 2

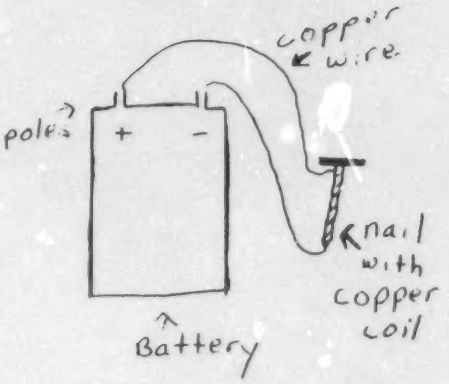
LABEL: Designing an Electromagnet

OBJECTIVES:
1. How to design an electromagnet.
2. To recognize the characteristics of an electromagnet.
3. To develop a vocabulary -- electromagnet, battery, electricity, paper clips.

MATERIALS: Nail, copper wire, battery, paper clips.

PROCEDURES:
1. Wind copper wire around head of a nail.
2. Attach wire to both poles of battery.

See how nail picks up the properties of a magnet by picking up paper clips.



ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K-6

Grade Level Primary - 2

LABEL: Hatching Chicks

OBJECTIVES:
1. To recognize the different stages in the birth of a chick.
2. To appreciate the miracle of birth.
3. To develop a vocabulary -- hatch, incubator, embryo, humidity, temperature, brooder, candling.

MATERIALS:
1. One dozen fertilized eggs
2. incubator
3. brooder
4. book on the hatching of eggs

PROCEDURES:
1. Show children fertilized eggs.
2. Explain the workings of the incubator.
3. Design a time chart.
4. Designate the days that each child will be in charge of turning eggs.
5. Watch the daily development of the embryo through candling the eggs.
6. Follow the process in a book.
7. Thrill to the hatching and final birth of the chick.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K-6

Grade Level 3rd

LABEL: Sound is Vibration

OBJECTIVES: Teach that sound is vibration.

MATERIALS: Drum, pieces of paper, your throat.

PROCEDURES: Put pieces of paper on top of drum, pound drum. Paper jumps up and down.

Put hands on throat and talk. Feel movement on throat. Sound causes vibrations.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K-6

Grade Level Primary - 3

LABEL: How Air Moves

OBJECTIVES: Air moves up as well as down.

MATERIALS: One glass with water, straw.

PROCEDURES:
1. Sip some water and swallow.
2. Then sip some water and do not swallow.
3. Put finger on top of straw as soon as you sip.
4. Hold up straw.

Water does not come out of straw because your finger is stopping the air from pushing it down, while air is pushing the water up.
Air pushes up as well as down.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area 1st grade

Grade Level Primary

LABEL: Changes - Matter - Life

OBJECTIVES:
1. To learn vocabulary -- solid, liquid, gas.
2. To be able to distinguish between solids, liquids and gases.
3. To be able to adapt changes in matter to other things in life.
   (egg - tadpole - frog)
   (cow - beef (meat) - steak)
   (infant - childhood - adulthood)
4. To develop further observation powers.

MATERIALS: Ice cubes, beakers, hot plate, test tubes, filmstrips on life cycle of a tadpole, pictures of various other matter changes, step by step.

PROCEDURES:
1. Discuss vocabulary.
2. State of ice.
3. Ice cubes placed in spoon allowed to melt, observations written.
4. Melted cubes in beaker, placed on hot plate, allowed to boil, make observations.
5. Sum up - 3 states observed.
6. Apply to other materials.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Primary/Intermediate

LABEL: Value of a Balanced Diet

OBJECTIVES: Demonstrate to children the outcome of eating an unbalanced diet.

MATERIALS: 2 mice of same litter
chart of a balanced diet for mice
candy, foods for the unbalanced diet.

PROCEDURES:
1. Place the mice in 2 separate cages. Feed one a balanced diet, the other an unbalanced diet.
2. At the end of each week, weigh both mice and compare it to its previous weight.
3. Make a bar graph of the weight for each mouse.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

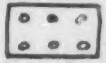
Area Reg.

Grade Level Intermediate

LABEL: Categorization

OBJECTIVES:
1. Learn to recognize equivalencies of numbers (percent, fractions, etc.)
2. Learn to recognize synonyms, nomonyms, antonyms, vocabulary, etc.

MATERIALS: Blocks, circles, balls, cardboard, (practically any kind of object).

PROCEDURES: Make a rectangular shaped cardboard board with holes. 
Place a guide for what you want child to match on the board.
Child will go ahead and try to accomplish what is necessary.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

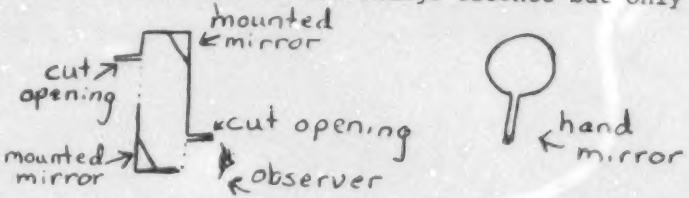
Area grade 4-6

Grade Level Intermediate

LABEL: Reflection of Light: Periscope

OBJECTIVES:
1. To show the principle of a simple periscope.
2. To show children the functional use of mirrors.
3. To reinforce the fact that light travels in a straight line.
4. To show children that reversals do not change essence but only direction.

MATERIALS:
shoe box
2 small mirrors
one hand mirror



PROCEDURES: Assemble periscope. Discuss what a periscope is and how it is useful. Ask children why the mirrors are used and what they would see without mirrors. Let the children discover what would happen if they moved one or the other mirror and why. Is the periscope image reversed? Why? Draw a picture of the light path.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Intermediate

LABEL: Sorting - Classification

OBJECTIVES:
1. To enable children to see likenesses and differences.
2. To enable children to categorize according to likenesses or differences.
3. To learn to apply simple learning experiences to more complex learning experiences.

MATERIALS: Assorted objects in various shapes, sizes, textures and colors.

PROCEDURES: Encourage children to manipulate objects. Encourage them to regroup according to any classification. Elicit the reasons for categories; i.e. what they have in common and why a member from another group would not belong. Apply this procedure to any area of the curriculum where there are classifications or categories; i.e. language, parts of speech, letter combination; science, classes of animals; arithmetic, equivalent numbers, etc.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Intermediate

LABEL: Composition of Objects - Molecular Theory

OBJECTIVES:
1. To show children that all objects are made up of smaller pieces or particles.
2. To show that some of the parts can be observed with the unaided eye, some parts can be observed with the help of a hand lense or microscope and to lead from that to the assumption that all objects are made up of particles too tiny to be seen at all.

MATERIALS:
1. Old articles of clothing (shirts, etc.)
2. Assembled and unassembled skeleton of animals (this can be a separate activity).
3. Hand lense
4. News photos (color and black and white)
5. Microscope
6. Water fleas
7. Thin onion slices
8. Jars
9. Ammonia
10. Phenolphthalein
11. starch
12. Iodine
13. Salt
14. Hot plate

PROCEDURES: Elect from children the various things that make up a classroom; a human body, etc. List on board. Show the shirt, show construction by ripping apart. Show construction of material by unravelling thread. Elicit parts of body - show how skeleton plus other parts of body make up the whole. Observe water fleas with unaided eye; observe under microscope. Notice previously unobserved parts. Follow procedure with onion. Observe photos, observe under hand lense. Notice how the smaller particles make up the whole. Discuss how certain particles are invisible, but their actions can be seen. Fill jar with ammonia. Have children raise hands when they smell it. (molecules are moving). Place pan of water on hot plate. Observe evaporation. Catch water molecules on cool cover. Follow same procedure with salt solution, observe how salt "disappears." Evaporate and rediscover it. Fill jar with ammonia. Fill other jar with phenolphthalein solution. Cover with cellophane. Invert over ammonia. Observe change. Fill plastic bag with starch. Seal. Place in container of water. Later, test water for starch. Observe change. Lead children to understand that there are processes whose evidence you can observe, but for which there is no actual observable proof. From this, lead into the molecular theory of matter.

ACTIVITY CARD

Area Req.

SPECIAL STUDY INSTITUTE - June, 1974

LABEL: Melting

Grade Level Intermediate

OBJECTIVES:
1. Solid object (ice) will melt, and form a liquid.
2. Liquid will take the form of the container it is in.
3. Develop vocabulary -- solid, liquid, melting, heat.

MATERIALS:
1. Tray of ice cubes
2. Containers of different sizes and shapes.
3. Water.

PROCEDURES:
1. To show the difference between a solid and a liquid.
2. Heat must be added to a solid to form a liquid.
3. Does the shape of a liquid change depending on the container?
4. Can a liquid be changed back to a solid?

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Intermediate

LABEL: Liquid to a Solid

OBJECTIVES:
1. A liquid can be changed into a solid when the temperature is lowered.
2. A solid will form the shape of the container it is in.
3. Develop vocabulary -- liquid, solid, heat, freezing.

MATERIALS: Ice cubes and tray, water, containers of different shapes and sizes.

PROCEDURES:
1. Distinguish the differences between a liquid and a solid.
2. Does the liquid change shape depending on the container shape?
3. To change a liquid into a solid, the temperature must be lowered (freezing).
4. The solid will hold the shape of the container it is in.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Intermediate

LABEL: Equivalency or Likenesses

OBJECTIVES:
1. To distinguish differences in geometric shapes.
2. Recognize equivalency of fractions.
3. Choose like fractions according to shapes.
4. Recognize language.

MATERIALS: Balls, wood, blocks, grab bag, blindfold, bones.

PROCEDURES: Put materials in a hidden container. Have children pick one object that has a fraction on it. Try to match this fraction with an equivalent one.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Intermediate

LABEL: Heat

OBJECTIVES: To show how heat can travel.

MATERIALS: Marbles or balls.

PROCEDURES: Move a closely packed set of marbles or balls (molecules).
Increase the motion.
The objects move faster and more of them get bumped.
Heat makes molecules move faster, thereby getting warmer.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Reg.

Grade Level Intermediate

LABEL: Electrons or Electricity

OBJECTIVES: To show flow of electrons in electricity.

MATERIALS: Pennies, box.

PROCEDURES: Players, representing atoms, stand in a circle. Each child holds a penny (an electron). One extra penny (electron) is placed in a box, located in front of a child who is the starter. Starter picks up electron from the box. Now he holds two electrons. (children must know that (1) no atom can have more than one electron at a time (2) no atom can throw away an electron (3) an atom can only pass electrons on to the next atom or to the box (4) an atom must never hand an electron back to the atom it came from.)
With these rules established, the starter passes his extra electron to the next child. Each child receives a new electron and passes extra electrons to the next child. As long as electrons are in motion, electricity is produced. (direct current). When each child and the box holds one electron each, all is in balance and no electricity is produced.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area 4-6 gr.

Grade Level Intermediate

LABEL: Spinning Table

OBJECTIVES:
1. To have children realize that one source of motion can have the effect of moving a different object.
2. To teach the role of a gear to move larger objects.
3. To help children realize that, as small individuals, they have the power to effect others when they work cooperatively.
4. To build awareness of the wheel as a necessary part of a gear.

MATERIALS: Two different sized wheels (board) mounted on a triangular board. Fan belt, Nail on small wheel.

PROCEDURES: Ask children to estimate how many rotations of the small wheel will be necessary to rotate the large wheel. Record the estimations. Test by moving the small wheel. Chart the amount of rotations of the small wheel and the large one. Discuss possible ways in which a wheel gear can be used. Children may draw possible "inventions" using the machine. Discuss social ways in which they, as the "small wheels" can effect others. Role play specific situations in which children can effect others.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area K-6 Reg.

Grade Level Intermediate

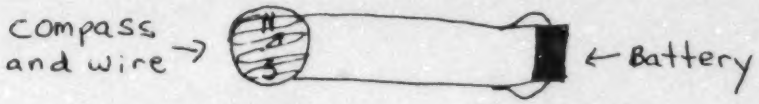
LABEL: Magnetism

OBJECTIVES:
1. To learn about the effect of electricity on a compass.
2. To learn that a change in the direction of electricity will effect a magnetic field.

MATERIALS: Compass, copper wire (thinly insulated), battery, connecting wire.

PROCEDURES:
1. Wind about 3 feet of wire around the compass.
2. Have child apply both ends of the wire to the top and bottom of the battery.
3. Then have child reverse the battery and repeat application.

Observation: The needle will change direction as battery is reversed.



ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area various

Grade Level various

LABEL: Geometric Shapes, Colors, Size - Classification

OBJECTIVES:
1. To learn to distinguish differences in sizes, shapes, colors of and textures of objects.
2. To learn to apply simple learning experiences to more complex learning experiences.

MATERIALS:
1. Assorted plastic wooden, metal objects. Balls, blocks, buttons, etc. in various colors.
2. Camera
3. Color film.

PROCEDURES: Encourage children to manipulate objects. Encourage them to regroup or sort objects according to shape, texture, size, material, color, or their own classification (uses, etc.). Apply knowledge acquired by walking through classroom, schoolyard or neighborhood and pointing out objects and naming them according to pre-established categories. Take photographs. Make three dimensional bulletin board using photographs and objects from sorting box.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Int. & Jr. High Science

Grade Level 5,6,7,8

LABEL: Electric Switches

OBJECTIVES:
1. To learn how a switch completes and breaks an electrical circuit.
2. To learn that there are many types of switches but they all do the same thing.
3. To learn how the switch itself is constructed and works.

MATERIALS:
1. As many different types of switches as can be obtained.
2. 1 dry cell
3. A small 1 1/2 volt bulb
4. A socket for bulb
5. Wire

PROCEDURES: Children have already learned what a circuit is. Connect battery, bulb, and wire together in a circuit with various types of switches one at a time. Turn each switch on and off to show its function of making and breaking the circuit. Take various switches apart to show how the contacts work to make and break circuit.

ACTIVITY CARD

SPECIAL STUDY INSTITUTE - June, 1974

Area Intermediate & jr. high

Grade Level 5,6,7,8 grade science

LABEL: Conditioning an Animal to Respond to a Stimulus

OBJECTIVES:
1. To show how animals can be trained to learn a new behavior.
2. To show how animals respond to a stimulus.
3. To have children realize that a stimulus must often be repeated many times before the desired behavior is learned.
4. To show children that rewards such as food can be used to condition or train animals in a desired behavior.
5. To teach children how to keep records.
6. To learn how a conditioned behavior may be extinguished.
7. To learn vocabulary (conditioning, response, stimulus, etc.)

MATERIALS:
1. A tank of goldfish
2. A flashlight or tanklight
3. food.

PROCEDURES: Shine light just before feeding fish every day for a number of days. After a number of days, the fish become conditioned to the light and will rise to surface to feed right after light is turned on. Here children keep a record or graph of how many days it takes fish to be conditioned to light. Children may also learn that learned behavior

may be extinguished. Light must be turned on without feeding fish for a number of days. After a while, the behavior is extinguished because the reward of food has been removed. Records can also be kept on this.